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CURRICULUM THEORY AND POLICY.

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IN A PRESENTATION TO THE AMERICAN EDUCATIONAL RESEARCH ASSOCIATION, IT WAS STATED THAT THEORY CONSTRUCTION IS ESSENTIAL TO ALL INQUIRY. THEORY IS CHARACTERIZED AS BEING PRACTICAL AND CONSISTS OF EITHER RELATED GENERALIZATIONS OR RELATED HYPOTHESES WHICH ARE TESTABLE. 4 TYPES OF THEORY ARE CLASSIFIED AS--(1) FORMAL THEORY, (2) EVENT THEORY, (3) VALUATIONAL THEORY, AND (4) PRAXIOLOGICAL THEORY. FORMAL THEORY IS SPECULATION WITH RESPECT TO STRUCTURE AND IS NON-VALUATIONAL. VALUATIONAL THEORY IS SPECULATION AS TO WORTHINESS WHILE PRAXIOLOGICAL THEORY IS SPECULATION ABOUT APPROPRIATE MEANS TO OBTAIN WHAT IS BELIEVED TO BE VALUABLE. THE 4 TYPES OF THEORY ARE DESCRIBED IN SPECIFIC RELATION TO CURRICULUM THEORY AND CURRICULUM POLICY. (JS)

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CURRICULUM THEORY AND POLICY

Educational Theory Center

and

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CURRICULUM THEORY AND POLICY

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1. Purpose of the Paper

Educational research has been narrowed to one aspect of inquiry into education, i.e. to observational verification or the checking of hypotheses in the manner of a scientist. Unless statistics, experimental design, data, and other marks of scientific verification procedures are present, there is doubt, or even denial, of the research nature of the inquiry. Moreover, the formulation of the hypotheses is taken for granted or expected to arise from the literature search or from the data. Hypothesis formation, theory construction, is not attended to as part of the research endeavor.

Yet theory construction is essential to all inquiry, including inquiry resulting in physical science. Theory cannot be taken for granted or found ready-made in the literature. Particularly is this the case in an under-developed cognitive terrain, such as that now being mapped through educational inquiry. Furthermore, theory cannot be completely dictated in the verification procedure. Percepts without concepts are blind.

> . . . before every study of facts a special kind of theoretic work is always necessary: to put down an instrumentorium of conceptions, a system of logically coherent problems to be solved by empiric research. (1)

It is the purpose of this paper, therefore, to attend to theorizing about education, but more specifically to theorizing about curriculum. This attention will focus upon the distinctiveness of the endeavor and upon its dimensions.

2. Theory Characterized

Theory is derived from the Greek term, '<u>theoria</u>', meaning a looking at or a speculation. It is not the case that theory should be discounted because it is speculation. It is necessary to have a way of looking at, even when one is looking at facts. It is not a case of preferring facts to theory.

> "Don't you make Theories as you go along, Pointer?"
> "I like finding facts better," Pointer thought. "Of course, if you cannot find a fact lying around, you have to fish for it with a theory." Both men were silent on that: both lost in thought. (2)

Speculation should be discounted, if there is no conceivable possibility of proving it is adequate. It is on this basis that non-empirical theory has been discounted. However, one must be cautious not to limit empirical theory to scientific theory. Such a limitation restricts the interpretation of experience ['empirical' comes from the Greek term, '<u>empeiria</u>', meaning experience] to the narrow confines of Hume's thought

> If we take in our hand any volume . . . let us ask, <u>Does it contain any abstract reasoning concerning quantity or number?</u> No. <u>Does it contain any experimental reasoning concerning matter of fact and existence?</u> No. Commit it then to the flames, for it can contain nothing but sophistry and illusion. (3)

or that of his contemporary counterpart, Ayer

> There is no field of experience which cannot, in principle, be brought under some form of scientific law, and no type of speculative knowledge about the world which is, in principle, beyond the power of science to give. (4)

Theory, besides being speculation, is non-practical in the sense of being non-applicable without adjustment to the instance caught up in a given time-place. This non-applicability without adjustment

results from the constitution of theory. Theory consists of generalizations which due to their nature cannot include all of the uniqueness. Theory has application with adjustment to all instances of a kind, instead of application without adjustment to a given instance. In this sense, Hegel's conception of the concrete (practical) universal (generalization) has meaning. Theory is practical.

If, then, theory is speculation with respect to classes, two dimensions of theory construction emerge: classes must be delineated and they must be related. Another way of stating the matter, which is equivalent but more common, relates to the view of theory construction as hypothesis formation (5). Variates must be made explicit, and they must be related. The result of theory construction, thus, is a group of related generalizations or a group of related hypotheses. This is what theory is.

It is important to emphasise that the complete act of research (6) includes more than theory construction. The hypotheses must be tested and modified accordingly. Theory which can be justified in terms of a verification procedure, or which can be modified so that such justification is possible, is adequate or true (7). Adequate or true theory is what knowledge is. Hypotheses when they check out become laws. Knowledge or law formation (8) is the goal of research or inquiry.

3. Kinds of Theory (9)

Speculation may be about forms, events, values, or practices. Consequently, there are four kinds of theory: formal theory, event theory, valuational theory, and praxiological (10) theory.

Formal theory is speculation with respect to structure. For example, ab = 1, is a structuring which permits the relating of variates as inversely proportion. This structuring was utilized in Boyle's law, PV = K. Another example, $[(p \supset q)(q \supset r) \supset (p \supset r)]$, is a theorem in sentential calculus. p, q, and r are variables allowing the substitution of hypotheses and '$\supset$' denotes if . . . then. This theorem permits structuring of hypotheses into a related group. Such deductive structuring is common in physical science.

The two examples point to mathematics and logic as comprising formal theory. But formal theory should not be confined within the bounds set by the 17th century rationalistic temper and maintained today by scientific empiricism (11) and logical empiricism (12). There are structures other than those of science. Logic and mathematics, in the main, are about structures of science. Consider the fact that logic as developed has little to do with ordinary language.

Formal theory, moreover, is non-valuational. It does not set forth structures as valuable. The use of 'epistemological' rather than 'formal' to characterize theory of structures (9b) might conduce to breadth of speculation, but it might conduce also to speculation about the valuableness of structures. Logic and mathematics need not necessarily be norms. That is a matter in need of more than formal speculation. 'Epistemology', then, should be rejected as a designation for a non-valuational type of theory.

Event theory is speculation with respect to occurrences. An example would be physical science. In fact, physical science is made by many the paradigm of adequate event theory. In this manner, event

theory becomes equated with scientific theory (9b). In fact, experience itself comes to be restricted within scientific bounds. 'Empirical' and 'scientific' become equivalent terms (9a). Such equating and restricting I now take to be errors, since non-scientific event theory, such as history, does exist and some of it is adequate.

It is not the case that event theory is valuational due to the event status of valuing behavior. Because something is valued does not make it valuable. What is valued may not have value. Valuational theory is speculation as to worthwhileness. Philosophy abounds with examples of such theorizing. Plato's Republic is an excellent illustration of considerations with respect to the human life worthy of living and the human society worthy of formation. There is no intention therein to speculate about occurrences which are or which ever will be.

> "Well," said I, "in heaven, perhaps, a pattern of it is indeed laid up, for him that has eyes to see, and seeing to settle himself therein. It matters nothing whether it exists anywhere or shall exist; for he would practice the principles of this city only, no other." (13)

Although philosophy is usually identified with the humanities, 'valuational' is preferred to 'humanistic' (9b). Non-theoretical and non-valuational theoretical components within the humanities would have to be ignored. In other words, the humanities would be characterized inadequately.

The final kind of theory to be explicated is praxiological theory. Praxiological theory is speculation about appropriate means to attain what is taken to be valuable. It is theory about practices. (14) It is not theory about what is to be taken as valuable. What is

valuable is assumed not established. Nevertheless, it is not mere applied science (9a) or, more correctly, applied theory of events. If it were simply applied theory of events, mode of action and technical base would be unimportant. However, man orders the events in a different way and even constructs new events (substances and instruments) in order to bring about what is taken to be valuable. From what has been said with respect to the technical base, it must be obvious that technological is not an apt characterization of theory of practices (9b).

In the discussion of the kinds of theory no mention was made of descriptive and prescriptive theory (9c). I now submit, but shall not argue here (15), that no theory can be adequate unless it be descriptive. Since description, therefore, is a dimension to be included in all theory, it is not an adequate category into which some theory can be sorted.

4. Policy Characterized

Policy is about either values or practices, but it is about the values or practices to be adopted as expedient. It follows from the meaning of 'expedient', what is proper to the circumstances of a given case, that policy does not consist of generalizations. It is neither valuational theory or praxiological theory. It is not theory at all.

The circumstances of a given case make what is valuable dependent upon what is valued by persons who have influence. Also what is brought about depends upon the means possible in the given time-place. For example, financial resources might rule out certain means, although these means are the ones appropriate to the bringing about of what is taken as valuable. Consequently, the means are suited to the circumstances, and something other

than what was taken as valuable emerges. The ideal, through limits placed upon it and upon the means to realize it, is modified.

5. Relation of Theory to Policy

One might interpret the conception of action "research" as a challenge to theorizing. The claim is that values and practices and their relation should be worked out in a given context, a given time-place. Policy-making should replace theorizing. Values and practices should not be worked out irrespective of context. Consider that such a move would produce only adjustment. Possibilities for change would no longer be before one. There would be no call to remove restrictions on values and practices. Moreover, the power of the general, the power of knowledge, would be unavailable. The policy-maker would have no theoretical foundation upon which to build.

6. Curriculum Theory

Theorizing is the sorting out and characterizing of events (delineating classes) and relating them. For this reason, the doing of curriculum theory is necessary in order to sort out the events to be called 'curriculum'. One cannot define 'curriculum' first, and do curriculum theory second. However, one could start with a less limited domain. Curriculum could be marked off within a theory of instruction. This was the approach I used in Instruction as Influence Toward Rule-Governed Behavior (9c). Curriculum was taken as presented instructional content, planned stimuli (16), which along with presented motivational content constituted teacher behavior. Instructional content as received and motivational content as received constituted student behavior.

Instruction, then, was a function of the relation between teacher behavior and student behavior. Stated symbolically:

$$I = f(B_T \; R \; B_S)$$

Curriculum theorizing comes to the fore in the explication of instructional content as rules. This explication was within a discipline perspective--a perspective that viewed human behavior as rule-governed or reason-governed (17). Furthermore, there are different sets of rules or reasons devised by man. There are different behavings. These sets are disciplines; and one comes to have diversity in his behavior, depending upon how many sets and rules or reasons within each set he comes to comprehend. Rules were further explicated as structures. This further explication helped to form an event theoretical foundation for other kinds of theorizing related to the development of economics curricular materials for the secondary schools, the current project in the Social Studies Curriculum Center at The Ohio State University. (18)

7. Formal Curriculum Theory

Formal curriculum theorizing comes into its own when 'curriculum' is given meaning in terms of structure. Speculation about structure becomes a requirement. For an excellent illustration one has but to cite again the Economics Project at Ohio State. M. Lovenstein, Professor of Economics, is setting forth structures in economics.

> By the structure of economics is meant: (1) the division of subject into its major categories and (2) the basic analytical themes which run through the entire subject. Economics may be divided into three groups of ideas: (a) scarcity and basic economic decisions; (b) the flows of goods and services and the flow of money; and (c) the coordination of economic activity. The basic analytical themes are: (a) marginal analysis and (b) institutions. (19)

That this kind of theorizing is distinctive was noted by E. Furst, Professor of Psychology who is concerned with evaluation on the Project. Since he takes evaluation in a less limited sense, he notes that speculation about structure requires its own kind of verification, and, hence, should be left to the philosophers and the members of the disciplines, in this case economists.

> . . . they are the ones who bear primary responsibility for the types of analysis and logical evaluation required. The contribution of evaluation, in the sense of the data-gathering phase of curriculum development, would be incidental here. (20)

8. Valuational Curriculum Theory

Neither curriculum theory (event theory) nor formal curriculum theory involves speculation as to what is the most valuable instructional content to present. Stated differently, there was no speculation as to curriculum objectives. The valuableness of a set of rules or a discipline was not claimed. As an instance of such theorizing, in The Scientific Perspective: Only One Curricular Model (17) I speculated as to the valuableness of valuational theorizing, the utopian perspective which gives birth to ideals, as instructional content.

9. Praxiological Curriculum Theory

Praxiological curriculum theory is speculation as to the appropriate curricular means to bring about curriculum objectives. Turning once more to the Economics Project, the curriculum objective is to present the structure of economics--the rules of behaving as an economist. The structure of economics is being put into the form of curricular materials and teachers will be oriented to the use of the

materials. Both the forming and orienting will be guided by the speculation that a series of sequenced situations in which the families of concepts unfold in meaning [one concept leads to another, but also develops at the same time] will bring about ability to engage in economic analysis (21).

10. Curriculum Policy and Kinds of Curriculum Theory

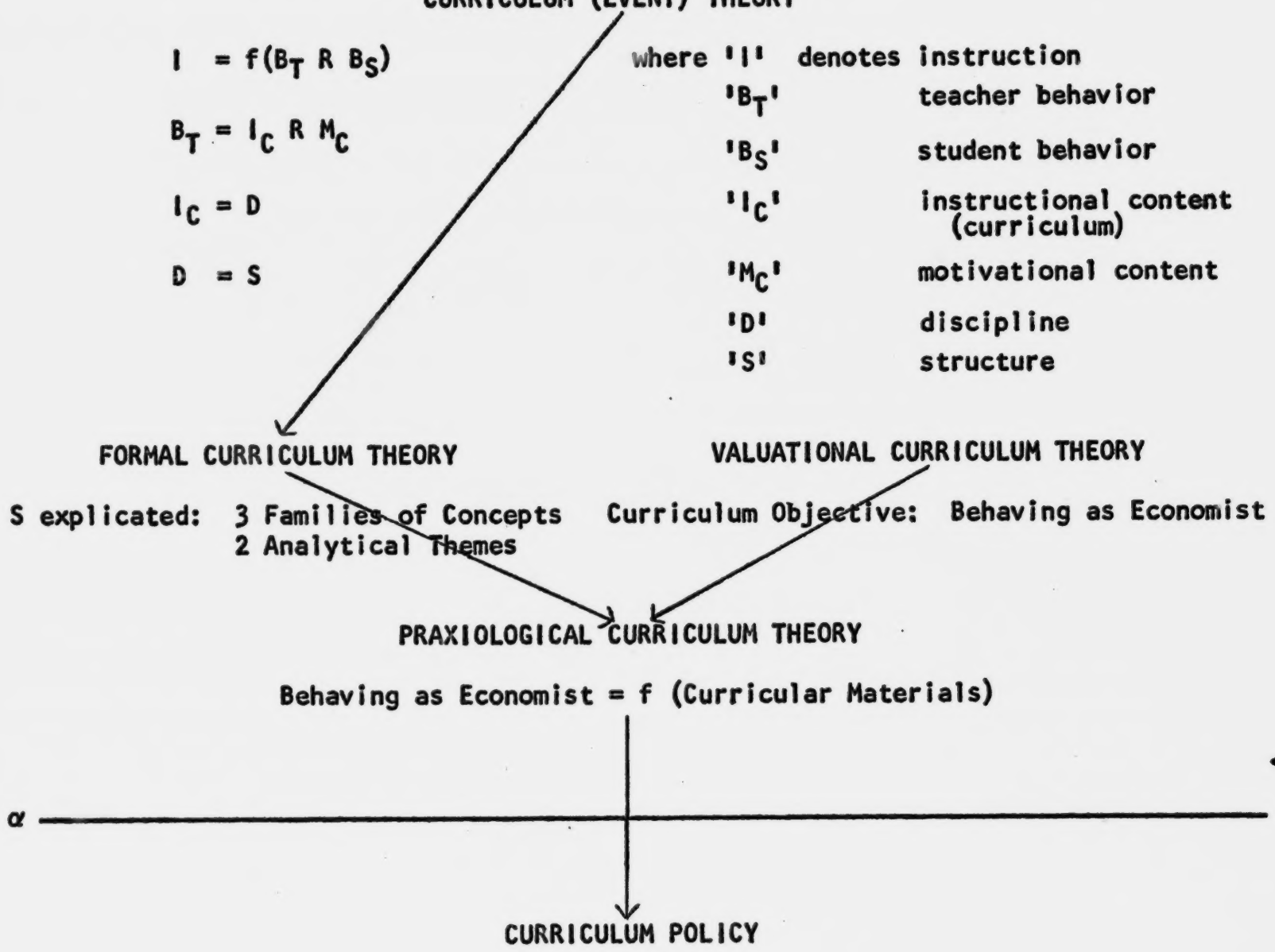
Curriculum policy is about the curriculum objectives or curriculum practices to be adopted as expedient. As such, curriculum policy has nothing to do with the development of valuational or praxiological curriculum theory. However, praxiological curriculum theory forms the theoretical base for curriculum policy. Incidentally, curriculum theory forms the theoretical base for formal curriculum theory; and formal curriculum theory with valuational theoretical curriculum theory forms the theoretical base for praxiological theory.

The schema on the following page is an attempt to summarize these interrelationships in the context of the Economics Project.

11. Conclusion of the Paper

One might conclude that this paper was devoted to talk about theory, rather than to theory. It was. Yet I make no apology accompanied by humble indication that the talk about theory was illustrated by reference to theorizing done elsewhere. Talk about theory is itself theory. Theory about theory is formal theory. More importantly,

> . . . certain great men are recognized as the founders of certain branches of science, and if we inquire why they are so regarded, we shall usually find . . . that they were the first to establish . . . the form that is specially characteristic of that science. (22)



'α' denotes the dividing line between the realm of knowledge about curriculum--the curriculum scholar's concern, and the realm of the on-going curriculum operation--the curriculum specialist's concern; and the dividing line between the Economics Project and its future beyond itself.

SCHEMA: KINDS OF CURRICULUM THEORY AND POLICY

FOOTNOTES

(1) Gerard Mackenroth, Theoretische Grundlagen der Preisbildungsforschieng und Preispolitik, Sozialwissenshaftlichen Studien, Berlin, 1933, p. v.

(2) A. Fielding, The Craig Poisoning Mystery, p. 65.

(3) David Hume, An Inquiry Concerning Human Understanding, edited by Charles W. Hendel, New York: The Liberal Arts Press, 1955, p. 173.

(4) Alfred J. Ayer, Language Truth and Logic, Dover Publications, New York, Second Edition, First Published, 1935, p. 54.

(5) See Section 1 of this paper.

(6) E. S. Maccia, "The Complete Act of Research" in The Graduate School Record, The Ohio State University, Spring, 1961.

(7) Adequate as an alternate to true indicates that the probable nature of truth is acknowledged.

(8) It should be noted that the usual distinction between hypotheses and theory or between laws and adequate theory is not being set forth. Recall that Boyle's Law and Gay Lussac's Law are not taken as part of the Dynamical Theory of Gases. [Norman Campbell in What is Science? (Dover Publications, New York, First Published, 1921) set forth such a distinction.] At the same time, it should be noted that the only basis for such a distinction is level of generality: the higher-order or more general hypotheses being called theory or the higher-order or more general laws being called adequate theory. Since there are no essential differences in the form or formation of either lower-order or higher-order hypotheses, the basis for not setting forth the distinction is taken to be more cogent.

(9) In this section, I set forth a classification which differs from three earlier ones. In "Empirical Theory Construction" [a paper presented to the Institute of Child Development and Family Life and to the Social Science Faculties, The Ohio State University, February 3, 1961] three kinds of theory, formal, empirical, and valuational, were recognized. 'Empirical' was taken in the sense of 'scientific'. Empirical theory, therefore, was either basic or applied scientific theory. In "The Separation of Philosophy from Theory of Education" [a paper in Studies in Philosophy and Education, Vol. II, No. 2, Spring, 1962] I sorted out scientific, humanistic, technological, and epistemological language; and, therefore, four kinds of theory can be recognized. The division of empirical theory into basic and applied scientific theory was

acknowledged; however, 'technological' was used instead of 'applied scientific'. 'Humanistic' was used instead of 'valuational'; and 'epistemological', instead of 'formal'. In Instruction as Influence Toward Rule-Governed Behavior [a paper, Occasional Paper 64-155, Educational Theory Center, The Ohio State University, presented to the Ninth ASCD Curriculum Research Institute, Washington, D.C., March 2, 1964] there was a return to three categories of theory: formal, descriptive, and prescriptive. This indicated open admission of an is-ought dichotomy. For purposes of reference, these there earlier attempts will be designated 9a, 9b, and 9c respectively.

(10) The term, 'praxiological', is taken from Tadeusz Kotarbinski's "Praxiological Sentences and How They are Proved" in Logic, Methodology and Philosophy of Science, edited by Nagel, Suppes, and Tarski, Stanford, California, 1962, pp. 211-223.

(11) Charles W. Morris, "Scientific Empiricism" in International Encyclopedia of Unified Science, Vol. 1, Part 1, Chicago: University of Chicago Press, 1938, pp. 63-75.

(12) H. Feigl, "Logical Empiricism" in Readings in Philosophical Analysis, edited by H. Feigl and W. Sellars, New York: Appleton-Century-Crofts, 1949, pp. 3-26.

(13) Plato, The Republic, translated by W. H. D. Rouse, Book 9, 592.

(14) Just like any theory, theory about practices suffers from impracticality. See Section 2 of this paper.

(15) R. M. Hare, Freedom and Reason, Oxford: Clarendon Press, 1963.

(16) Stimulus is derived from an information theory model. Instead of a stimulus causing a reaction when the threshold is exceeded, we now think rather in terms of a signal which may be obscured by noise, providing the information needed to select a response. (E. R. Crossman, "The Measure of Discriminability," in Quarterly Journal of Experimental Psychology, Vol. 49, 1955, pp. 323-332.)

(17) E. S. Maccia, The Scientific Perspective: Only One Curricular Model, (presented at The University of Chicago, July 1963), Occasional Paper 63-143, Educational Theory Center, The Ohio State University.

(18) E. S. Maccia, The Nature of a Discipline-Centered Curricular Approach, Occasional Paper 64-166, Social Studies Curriculum Center, The Ohio State University.

(19) Meno Lovenstein, Teacher's Guide--A Preliminary Draft, Occasional Paper 64-167, Social Studies Curriculum Center, The Ohio State University.

(20) Edward Furst, Tasks of Evaluation in An Experimental Course, Occasional Paper 64-171, Social Studies Curriculum Center, The Ohio State University.

(21) Meno Lovenstein, "Economics, Educational Philosophy, and Psychology" in The Teaching of Elementary Economics, edited by Knoff and Strauss, New York: Holt, Rinehart and Winston, 1960, pp. 138-166.

(22) Campbell, op. cit., pp. 74-75.

ERRATA

p. 10: l. 13:	'valuational curriculum theory' not 'valuational theoretical curriculum theory'
p. 10: l. 14:	'praxiological curriculum theory' not 'praxiological theory'
Footnote (9) l. 23:	'these three' not 'these there'